

Serial No.: 09/889,590
Atty. Docket No.: P66912US0

REMARKS

This is in response to the first Office Action of August 28, 2003 (Paper No. 13). By this Amendment, claims 1, 30 and 32 have been canceled and new claims 33 and 34 have been added. Claim 33 is a substitute for independent claim 1. Thus, claims 2-29, 33 and 34 are in the application for examination.

The present invention relates to a system and method for conditioning a substrate mass with a pair of conducting elements at least one of which is an electrokinetic geosynthetic structure having a conducting element associated therewith. The conducting element may be a distinct structure or may be part of the geosynthetic material itself. Although electrokinetic geosynthetic structures have been used before, their function was as a drainage or reinforcement element. In the present invention, the electrokinetic geosynthetic structure is inserted directly into the substrate mass but not used for any reinforcement or drainage function. Rather, it is utilized to electrokinetically condition the substrate by driving a conditioning material into the substrate.

In the first Office Action, the Examiner rejected claims 30 and 32 as anticipated by Marks U.S. Patent No. 5,458,747. Claims 30 and 32 have been canceled and thus the rejection is moot. As will be discussed, the Marks patent is significantly different from the present invention.

In the first Office Action, the Examiner rejected claims 1-14 and 17-29 as unpatentable over Marks in view of Griffith U.S. Patent No. 5,584,980. Reconsideration is respectfully requested.

The principal Marks reference discloses a method for conditioning a substrate mass between two conditioning elements including an electrolyte therebetween. A supply system is associated with

one of the conducting elements to drive a conditioning material across the substrate, primarily for bioremediation purposes. Thus, there is a general similarity between the chemical processes involved in this reference and those of the present invention.

However, the electrode structure in Marks is, as the Examiner concedes, very different from that envisaged in the present invention. The electrodes are of conventional design, contained in electrode wells in a conventional manner, to allow a conditioning liquid to be pumped through a source electrode and driven by electro-osmotic flow towards a sink electrode, to effect the bioremediation. These two electrodes are of conventional design and neither are electrokinetic geosynthetic structures. The provision of electrokinetic geosynthetic structures in accordance with the present invention confers significant functional advantages, and also means that electrodes are provided which offer significantly enhanced environmental resistance in the often harsh environments to which the invention can be applied.

The Examiner seeks to draw the necessary teaching from the Griffith patent. However, Griffith is just a conventional drain structure, in which a conventional electrode performs an electrode function, and a geosynthetic material is supplied as a drainage sheath material. This differs fundamentally from the principle of the present invention, whereby the conductor and geosynthetic are intimately associated (and in an embodiment the geosynthetic is itself conducting), with the intention of producing a conducting geosynthetic structure. This is then able to act in a singularly effective manner as a conditioning electrode, inserted directly into the substrate to drive the conditioning material electrokinetically within the substrate.

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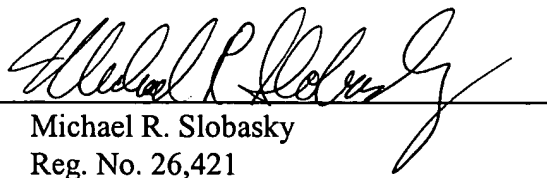
In the Griffith patent the geosynthetic serves in a more traditional manner as an inert drainage sheath. By contrast, in the present invention, the electrokinetic geosynthetic material, with a conducting electrode associated therewith, or being made conducting itself, effectively serves as part of the conductive system. The claims have been amended to recite that the geosynthetic is positioned within the substrate mass without regard to any reinforcement or drainage function.

In the first Office Action, claim 15 was further rejected over the same combination further in view of the Acar U.S. Patent 5,616,235; claim 16 was rejected over the same combination further in view of Doring U.S. Patent 5,738,778. Overall the inclusion of these references fail to overcome the basic combination to include an electrokinetic geosynthetic structure that forms a conducting element and not part of any drainage or reinforcement function.

Thus, this application is now in condition for allowance. Should the Examiner have any questions after reviewing this Amendment, he/she is cordially invited to telephone the undersigned attorneys so that a prompt Notice of Allowance may be received.

Respectfully submitted,

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